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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,858	09/02/2005	Urs Staufer	27656/40686	9596
4743 7590 01/25/2008 MARSHALL, GERSTEIN & BORUN LLP 233 S. WACKER DRIVE, SUITE 6300 SEARS TOWER CHICAGO, IL 60606			EXAMINER BLATT, ERIC D	
			ART UNIT 3734	PAPER NUMBER
			MAIL DATE 01/25/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/525,858

Applicant(s)

STAUFER ET AL.

Examiner

Eric Blatt

Art Unit

3734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10 and 12-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-8, 10 and 12-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4-7-2005, 2-25-2005.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the atomic force microscope at an end of a tubular structure must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 1-8, 10, and 12-21 are objected to because of the following informalities: these claims recite an atomic force microscope, but no atomic force microscope are shown in the drawings. These features must be shown or canceled from the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10, and 12-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tearney et al. (US 6,501,551) in view of Smithwick et al. (US 6,845,190).

Regarding claims 1 and 21, Tearney discloses a medical instrument (Figure 11) comprising an elongated tubular structure with an end for insertion in a body cavity and at least one inflatable balloon 80 connected to at least one capillary tube 81 and inflatable by pressing a fluid and/or gas into said tube. There is an optical imaging means 54 provided in a recess at the distal end of the device. Tearney does not disclose an atomic force microscope at the distal end of the device. Smithwick discloses that instruments for atomic force microscopy may be provided at the distal

end of an elongated tubular structure. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Tearney by replacing the optical imaging means 54 with an atomic force microscope at the distal end of the elongated tubular structure in order to gather data about the surrounding tissue as taught by Smithwick. The atomic force microscope would be positioned in the recess, said recess comprising a means for receiving said atomic force microscope.

Regarding claims 2-4, the balloon 80 is arranged at a distance from said atomic force microscope. The elongated tubular structure further comprises at least one surface opening and said at least one inflatable balloon is located at said at least one surface opening. There are several surface openings, wherein said surface openings are uniformly distributed along a circumference of said elongated tubular structure and the centers of all surface openings are at equal distance from the end of the elongated tubular structure to be inserted in the body cavity. (See at ports between capillary tubes 81 and proximal balloons 80 in Figure 11A)

Regarding claim 5, the recess of Tearney is rounded. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the recess have a polygonal profile since the shape of the recess is an obvious matter of design choice.

Regarding claims 6-8, the elongated tubular structure further comprises a means for forcing the balloons to expand outside said elongated tubular structure. Said means for forcing the balloons to expand outside said elongated tubular structure is a ring. The

balloons are disposed on the outer surface of the elongated tubular structure. Said outer surface comprises a ring and forces the balloons to expand outward. The capillary tubes are fixed to said means for forcing the balloons to expand outside said elongated tubular structure.

Regarding claim 10, the elongated tubular structure comprises a first part (the insertion portion of the device) and a second part (the proximal portion of the device) which are connected by a connecting means 44 (Figure 8).

Regarding claim 12, Tearney discloses a method for stabilizing and/or positioning an atomic force microscope in a body cavity comprising the steps of: introducing a device comprising an imaging means 54 and at least one inflatable balloon 80 arranged in a distance from said atomic force microscope in a body cavity, inflating said at least one balloon with a liquid and/or gas until said at least one inflated balloon contacts an inner surface of the body cavity and said imaging means is stabilized and/or positioned. (Column 11, Line 36 through Column 12, Line 15) There is an optical imaging means 54 provided in a recess at the distal end of the device. Tearney does not disclose an atomic force microscope at the distal end of the device. Smithwick discloses that instruments for atomic force microscopy may be provided at the distal end of an elongated tubular structure. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Tearney by replacing the optical imaging means 54 with an atomic force microscope at the distal end of the elongated tubular structure in order to gather data about the surrounding tissue as

taught by Smithwick. The atomic force microscope would be positioned in the recess, said recess comprising a means for receiving said atomic force microscope.

Regarding claim 13, the at least one inflatable balloon is inflated by a liquid, preferably a physiological liquid.

Regarding claim 14, said device comprises at least two balloons, preferably at least four balloons.

Regarding claims 15 and 16, the elongated tubular structure of Tearney is designed to be inserted into a body cavity, but Tearney does not explicitly state that it is inserted into a knee joint. It would have been obvious to one of ordinary skill in the art at the time of the invention to insert the elongated tubular structure into a knee joint in order to perform a procedure on a knee joint.

Regarding claim 17, the elongated tubular structure comprises at least two surface openings (ports from capillary tubes 81 into balloons 80) and at least two inflatable balloons 80 located at said surface openings.

Regarding claims 18 and 20, Tearney discloses at least two balloons located at at least two surface openings. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Tearney by providing four balloons at four surface openings.

Regarding claim 19, the balloons are inflatable by different pressures.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Einzig; Robert E. (US 4873989): Fluid flow sensing apparatus for in vivo and industrial applications employing novel optical fiber pressure sensors
- Kanazawa; Shin-ichi et al. (US 5201317): Diagnostic and therapeutic catheter
- Flaherty; J. Christopher et al. (US 6283951): Systems and methods for delivering drugs to selected locations within the body
- Blank; Aharon et al. (US 6704594): Magnetic resonance imaging device
- Erlach, Julian Van et al. (US 20030032892): Nanodevices, microdevices and sensors on in-vivo structures and method for the same

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Blatt whose telephone number is 571-272-9735. The examiner can normally be reached on Monday-Friday, 9:00 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Hayes can be reached on 571-272-4959. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eric Blatt
571-272-9735

A handwritten signature in black ink, appearing to read "MJ Hayes", with a stylized, flowing script.

MICHAEL J. HAYES
SUPERVISORY PATENT EXAMINER